TABLE 1 - 12/28/11
FIELD AND QC SAMPLING SUMMARY
DIMOCK RESIDENTIAL GROUNDWATER SITE
DIMOCK, SUSQUEHANNA COUNTY, PENNSYLVANIA

Parameter/Method	Lab	Matrix	Field Samples	Bkgd	QC Sample Summary					Total Field and QA/QC Analyses (not including MS/MSD)[3]
					Dup	Trip[1] Blanks	Rinsate[1,2] Blanks	Field[1] Blanks	MS/MSD	
Alkalinity (SM 2320B) (Total Hardness, HCO3, CO3) (2320B, 2340B)	Ft. Meade	drinking water	60	0	6	0	0	5	0	71
Alcohols: Ethanol, methanol, 1-propanol, 1-butanol, 2-butanol (8015D)	?	drinking water	60	0	6	0	0	5	3	71
Anions, Chloride, Bromide, Fluoride, Nitrate/Nitrite as N, Orthophosphorus as P, Sulfate as SO4 (300.0)	Ft. Meade	drinking water	60	0	6	0	0	5	0	71
Glycols incl. 2-Butoxyethanol (8321 Modified)	Ft. Meade	drinking water	60	0	6	0	0	5	0	71
Metals: Al, Ca, Cr, Cu, Fe, Mg, Mn, Ni, Na, As, Se, Zn, Ti, Sr, Ba, Sn, Sb, Be, Cd, Co, Tl, U, V, K, Hg (200.8/245.1)	Ft. Meade	drinking water	60	0	6	0	0	5	6	71
Metals: Al, Ca, Cr, Cu, Fe, Mg, Mn, Ni, Na, As, Se, Zn, Ti, Sr, Ba, Sn, Sb, Be, Cd, Co, Tl, U, V, K, Hg (200.8/245.1)	Ft. Meade	Filtered drinking water	60	0	6	0	0	5	6	71
pH (9040C)	Ft. Meade	drinking water	60	0	6	0	0	5	0	71
Phosphorus, Total (365.1)	Ft. Meade	drinking water	60	0	6	0	0	5	0	71
Nitrate/Nitrite (353.2)	Ft. Meade	drinking water	60	0	6	0	0	5	0	71
Semi-Volatiles (TCL plus TICs) (CLP Trace plus TICS) (OLC03.2)	Ft. Meade	drinking water	60	0	6	0	0	5	3	71
1-methylnapthalene (8270 or equivalent)	Ft. Meade	drinking water	60	0	6	0	0	5	0	71
Volatiles incl. Acrylonitrile (TCL plus TICs) (CLP Trace - 0.5 ug/L QL) (OLC03.2)	Ft. Meade	drinking water	60	0	6	1 per cooler	0	5	3	71 + Trip Blanks for Coolers
Solids, Total Dissolved (TDS) (2540C)	Ft. Meade	drinking water	60	0	6	0	0	5	0	71
Solids, Total Suspended (TSS) (2540D)	Ft. Meade	drinking water	60	0	6	0	0	5	0	71
Bacteria (total coliform, HPC)	TechLaw	drinking water	60	0	6	0	0	5	0	71
$d^{13}C$ and $d^{2}H$ of methane (isotech)	Isotech	drinking water	10	0	0	0	0	0	0	10
$d^{13}C$ of inorganic carbon (isotech)	Isotech	drinking water	10	0	0	0	0	0	0	10
Stable isotopes of water (O,H) (isotech)	Isotech	drinking water	10	0	0	0	0	0	0	10
Complete compositional analysis of headspace gas (isotech)	Isotech	drinking water	10	0	0	0	0	0	0	10
Diss. gases methane, ethane, ethene (isotech)	Isotech	drinking water	10	0	0	0	0	0	0	10
Dissolved Gases, Methane, Ethane, & Ethene (RSK-175)	Region 9	drinking water	60	0	6	0	0	5	0	71
DRO (8015M)	Region 9	drinking water	60	0	6	0	0	5	0	71
GRO (8015M)	Region 9	drinking water	60	0	6	0	0	5	0	71
Gamma Spec (K-40, Ra-226, Ra-228, Th-232, Th-234, U-234, U-235, U-238) (901.1)	NAREL	drinking water	60	0	6	0	0	5	0	71
Gross Alpha/Beta (900.0)	NAREL	drinking water	60	0	6	0	0	5	0	71
Ethylene Glycol (8015M)	TechLaw Pace	drinking water	60	0	6	0	0	5	0	71
2-Methoxyethanol (8015B)	TechLaw Pace	drinking water	60	0	6	0	0	5	0	71
Methylene Blue Active Substances (MBAS) (SM 5540C)	TechLaw Pace	drinking water	60	0	6	0	0	5	0	71
Oil & Grease (HEM) (1664A)	TechLaw Pace	drinking water	60	0	6	0	0	5	0	71
Ra-226 (903.1)	TechLaw Pace	drinking water	60	0	6	0	0	5	0	71
Ra-228 (904.0)	TechLaw Pace	drinking water	60	0	6	0	0	5	0	71
Turbidity, Nephelometric (180.1)	TechLaw	drinking water	60	0	6	0	0	5	0	71

Notes:

1. This QA sample will be an aqueous matrix.
2. Sample to be collected only if non-dedicated sampling equipment is used.
3. Estimate based on 5 sampling days

Key:

Bkgd = Background

QA/QC = Quality assurance/quality control

MS/MSD = Matrix Spike/Matrix Spike Duplicate

Sr = Strontium

Dup = Duplicate

TABLE 2 - 12/28/11
SAMPLE ANALYTICAL REQUIREMENTS SUMMARY
DIMOCK RESIDENTIAL GROUNDWATER SITE
DIMOCK, SUSQUEHANNA COUNTY, PENNSYLVANIA

Analytical parameter and Method	Matrix	Sample Preservation	Holding Time	Sample Container(s)	Procurement Sour	Number
Alcohols: Ethanol, methanol, 1-propanol, 1-butanol, 2-butanol (8015D)	drinking water	Ice, 6°C	7 days	Three 40-ml glass vials (Fill to capacity with no head space)	Ft. Meade	3
Alkalinity (2320B, 2340B)	drinking water	Ice, 6°C	14 days	One 500-ml HDPE	Ft. Meade	1
Anions: Chloride, Bromide, Fluoride, Nitrate/Nitrate as N, Orthophosphorus as P, Sulfate as SO4 (300.0)	drinking water	Ice, 6°C	28 days	One 500-ml HDPE	Ft. Meade	1
Bacteria (total coliform, HPC)	drinking water	Ice, 4°C (.008% Na2S2O3 if residual Cl- present)	6 hours	125 ml Pre-sterilized polyproylene	Tier 4	1
d13C and d2H of methane (Isotech)	drinking water	Ice, 4°C, biocide pill in sample container	6 months	one 1-L poly/TBD*	Tier 4	1
d13C of inorganic carbon (Isotech)	drinking water	Ice, 4°C	6 months	one 1-L poly/TBD*	Tier 4	1
Complete compositional analysis of headspace gas (isotech)	drinking water	Ice, 4°C, biocide pill in sample container	6 months	one 1-L poly/TBD*	Tier 4	1
Diss. gases methane, ethane, ethene (isotech)	drinking water	Ice, 4°C, biocide pill in sample container	6 months	one 1-L poly/TBD*	Tier 4	1
Dissolved Gases, Methane, Ethane, & Ethene (RSK-175)	drinking water	pH<2 with HCl and cool with ice, 4°C	7 days	One 40-ml glass vial	Tier 4	1
Ethylene Glycol (8015M)	drinking water	Ice, 4°C	7 days	Three 40-ml glass vials (Fill to capacity with no head space)	Tier 4	3
DRO (8105M)	drinking water	Ice, 4°C	7 days extract; 40 days analysis	Two 1-Liter amber glass jars with teflon-lined lids		2
GRO (8105M)	drinking water	pH<2 with HCl and cool with ice, 4°C	14 days	Three 40-ml glass vials (Fill to capacity with no head space)		3
Gamma Spec (K-40, Ra-226, Ra-228, Th-232, Th-234, U-235, U-238) (901.1)	drinking water	pH<2 with HNO3 and cool with ice, 4°C	6 months	One 1-Liter HDPE	Tier 4	1
Glycols incl. 2-Butoxyethanol (8316)	drinking water	Ice, 6°C	7 days	Three 40-ml glass vials (Fill to capacity with no head space)	Ft. Meade	3
Gross Alpha/Beta (900.0)	drinking water	pH<2 with HNO3 and cool with ice, 4°C	6 months	One 1-Liter HDPE	Tier 4	1
Metals: Al, Ca, Cr, Cu, Fe, Mg, Mn, Ni, Na, As, Se, Zn, Ti, Sr, Ba, Sn, Sb, Be, Cd, Co, Tl, U, V, K, Hg (200.8/245.1)	drinking water	pH<2 with HNO3 and cool with ice, 4°C	6 months	One 1-Liter HDPE	Ft. Meade	1
Metals: Al, Ca, Cr, Cu, Fe, Mg, Mn, Ni, Na, As, Se, Zn, Ti, Sr, Ba, Sn, Sb, Be, Cd, Co, Tl, U, V, K, Hg (200.8/245.1)	(filtered) drinking water	pH<2 with HNO3 and cool with ice, 4°C	6 months	One 1-Liter HDPE	Ft. Meade	1
Methylene Blue Active Substances (MBAS) (SM 5540C)	drinking water	Ice, 4°C	48 hours	One 500-ml HDPE	Tier 4	1
Nitrate/Nitrite (Total N) (353.2)	drinking water	pH<2, H2SO4, and cool with ice, 4°C	7 days	Two 1-Liter amber glass jars with teflon-lined lids	Ft. Meade	2
Oil & Grease (HEM) (1664A)	drinking water	pH<2, H2SO4, and cool with ice, 4°C	28 days	One 1-Liter amber glass jars with teflon-lined lids	Tier 4	1
pH (9040C)	drinking water	Ice, 6°C	As soon as possible	One 250-ml HDPE	Ft. Meade	1
Phosphorus, Total (365.1)	drinking water	Ice, 6°C	28 days	One 400-ml HDPE	Ft. Meade	1
Ra-226 (903.1)	drinking water	pH<2 with HNO3 and cool with ice, 4°C	6 months	One 1-Liter HDPE	Tier 4	1
Ra-228 (904.0)	drinking water	pH<2 with HNO3 and cool with ice, 4°C	6 months	One 1-Liter HDPE	Tier 4	1
Semi-Volatiles (TCL plus TICs) (OLC03.2)	drinking water	Ice, 6°C	7 days	Two 1-Liter amber glass jars with teflon-lined lids	Ft. Meade	2
Solids, Total Dissolved (TDS) (SM 2540C)	drinking water	Ice, 6°C	7 days	One 500-ml HDPE	Ft. Meade	1
Solids, Total Suspended (TSS) (SM 2540D)	drinking water	Ice, 6°C	7 days	One 500-ml HDPE	Ft. Meade	1
Stable isotopes of water (O,H) (Isotech)	drinking water	Ice, 4°C	6 months	one 1-L poly/TBD*	Tier 4	1
Turbidity, Nephelometric (180.1)	drinking water	Ice, 4°C	48 hours	One 250-ml HDPE	Tier 4	1
2-Methoxyethanol (8015B)	drinking water	Ice, 6°C	7 days	Two 1-Liter amber glass jars with teflon-lined lids	Tier 4	2
1-methylnapthalene (8270 or equivalent)	drinking water	Ice, 6°C	7 days	Two 1-Liter amber glass jars with teflon-lined lids	Tier 4	2
Volatiles (TCL plus TICs) (CLP Trace - 0.5 ug/L QL) (OLC03.2) incl. Acrylonitrile	drinking water	2 drops of 1:1 HCl, pH<2, Ice, 6°C	7 days	Six 40-ml glass vials w/Teflon lined cap (no head space)	Ft. Meade	6
						50

Note: Analyses will be combined into sample bottles as applicable/appropriate based on determination by lab(s).

KEY:

°C = degrees Celsius
C14 = Carbon 14 isotope
CLP = Contract Lab Program
D13C = delta of carbon-13
D2H = delta of deuterium
H2SO4 = Sulfuric Acid
HDPE = High density polyethylene
HNO3 = Nitric Acid
HPC = Heterotrophic Plate Count
ml = milliliter
Na2S2O3 = Sodium Thiosulfate
pH = potential Hydrogen
QL = Quantitation Limit
Sr = Strontium
TCL = Target Compound List
TICs = Tentatively Identified Compounds
ug/L = micrograms per liter
* all parameters to be analyzed by isotech can be combined into one 1-L poly bottle with septum lid